DECLARATION OF NON - FUNCTIONALITY

This correspondence is in response to office action mailed 06-06-05 rejecting my U. S. Patent Application No. 10/694,137 of Brian F. Jackman filed 10/27/2003 Titled: CARTRIDGE NOZZLE SEAL OPENED BY INTERNAL CARTRIDGE PRESSURE as being obvious and unpatentable over Smith (U. S. 4,830,231) in view of Galbierz (U. S. 3,071,294).

Bonding the frangible seal and nozzle component of the dispensing device of Galbierz to the composite disk valve component of the dispensing cartridge of Smith as specified in the rejection, creates a multi layered seal disk combination that differs substantially in design from my own pressure activated self opening nozzle seal invention.

Additionally, the components of the Smith composite disk and the Galbierz dispensing device that are described in the rejection as being equivalent to the components that make up my own seal invention, differ substantially.

Additionally, combining the separate components of the Smith composite disk and the Galbierz dispensing device as specified in the rejection creates a seal disk that will not function in the manner that my own seal invention functions.

Additionally, combining the separate components of the Smith composite disk and the Galbierz dispensing device as specified in the rejection creates a seal disk that will not function in the manner claimed in the rejection.

This will become more obvious with a detailed and clear understanding of the individual components that make up the composite disk valve of Smith and the dispensing device of Galbierz and what functional characteristics the combination seal disk would exhibit.

Smith describes in his specification and shows in his drawings that his COMPOSITE DISK VALVE FOR DISPENSING CARTRIDGES is made up from a layer of flexible polyester that serves as an end cap for closing off one end of a cartridge type tube dispenser. The opposite end is sealed by a piston plug that when advanced by the plunger of the dispensing gun pressurizes the cartridge to dispense the contents. The polyester end disk contains three x shaped slits that serve as petal valves that spread open to dispense mayonnaise type condiments onto sandwich buns when the cartridge is pressurized and then close when the pressure is relieved to prevent dripping of the product. In order to dispense the mayonnaise over a sufficiently wide area of the bun, the three slits are spaced apart in a triangular configuration. As Smith further describes, a paperboard layer is bonded to the outside of the single layered polyester end disk in order to stiffen it enough to allow automated equipment to handle the end disk during the assembly of the cartridge. However, if the paperboard layer was bonded over the entire end disk and also contained duplicate slits, the stiffness of the paperboard would prevent the petal valves from opening and closing properly. Smith overcomes this drawback by cutting out a circular hole in the center section of the paperboard layer that is wide enough to expose the three spaced out petal valves. The paperboard layer now forms a raised outer stiffening ring. An additional layer of polyethylene with a duplicate center cut out is adhesively bonded to the exterior of the paperboard ring to prevent contamination by oils and such. Because of the difficulty of bonding the polyester plastic of the end disk to the cartridge body, Smith adhesively bonds a polyethylene layer with a duplicate center cutout to the inner side of the polyester end disk which then allows the end disk to be bonded to the inner sidewalls of the cartridge body. The arrangement and configuration of these differing layers leaves only the single layer of polyester containing the petal valves in the recessed circular center section of the end disk. A peelable seal wide enough to cover over the circular center cutout containing the petal valves is bonded to the outer polyethylene ring layer to protect the valves from contamination. The releasable seal is then peeled from the raised polyethylene ring layer prior to using the cartridge.

Galbierz describes in his specification and shows in his drawings that his DISPENSING DEVICE FOR CAULKING CARTRIDGES is a flared nozzle with an outer flange that surrounds the inlet opening at the base of the nozzle. The nozzle and flange fit into the center opening of the end cap of a caulking

cartridge from the interior. The end cap wall has an inner circular recess projecting outwardly surrounding the center opening that the flange seats into. The nozzle opening, and the joint between the recessed flange and the inner wall of the end closure, is sealed over by a two layered seal made up from a first layer of metal foil with a second layer of polyethylene adhesively bonded to it. The polyethylene layer side of the seal is bonded to the flange, and a portion of the interior wall of the end cap surrounding the flange, to seal over the nozzle opening and the seam between the edge of the flange and the end cap. To dispense the contents the internal pressure of the cartridge is increased by the application gun until it reaches a point that causes the seal to expand and burst open inside the nozzle.

The examiner states in the office action that the reason for rejecting my seal invention as unpatentable is that it would have been obvious to one skilled in the art to attach the frangible seal 24 and nozzle 15 of the dispensing device of Galbierz to the end disk 32 of the composite disk valve of Smith to reproduce my CARTRIDGE NOZZLE SEAL OPENED BY INTERNAL CARTRIDGE PRESSURE as disclosed in my patent application.

There are several intractable obstacles that become apparent when attempting to attach the seal 24 and nozzle 15 of Galbierz to the end disk 32 of Smith that prevent the Smith - Galbierz device from providing a self opening cartridge nozzle seal that would function in the same manner as my own self opening seal invention.

It is not obvious to this inventor nor is it stated by the examiner in the rejection what method is used to attach the seal 24 and nozzle 15 of Galbierz to the end disk 32 of Smith that will produce a frangible seal arrangement that will burst open in any manner when sufficient cartridge pressure is applied to the combination seal and end disk.

There are only four possible methods that can be used to attach the seal 24 and nozzle 15 of Galbierz to the end disk 32 of Smith:

1. The seal 24 of Galbierz is first bonded to the raised polyethylene ring 40 of Smith, and then the nozzle15 of Galbierz is bonded to the seal 24.

2. The seal 24 of Galbierz is first bonded to the recessed valve area 50 of Smith, and then the nozzle15 of Galbierz is bonded to the seal 24.

3. The nozzle 15 of Galbierz with the seal 24 already bonded to it, is bonded to the raised polyethylene ring 40 of Smith.

4. The nozzle 15 of Galbierz with the seal 24 already bonded to it, is bonded to the recessed valve area 50 of Smith.

Looking at the first possible method of attaching the frangible seal 24 and nozzle 15 of Galbierz to the end disk 32of Smith.

1. The seal 24 of Galbierz is first bonded to the raised polyethylene ring 40 of Smith, and then the nozzle15 of Galbierz is bonded to the seal 24.

In order to bond the seal 24 of Galbierz to the raised polyethylene 40 ring layer of Smith would require modifying the end disk 32 of Smith by first reducing the diameter of the cut outs 44 and 38 in the layers 36 and 40 of Smith to the same width as the interior opening of the nozzle 15 of Galbierz. The width of the interior opening of a standard sized cartridge nozzle as shown in my application and Galbierz's patent, is approximately ½ inch. This is a substantially smaller area relative to the spaced out positioning of the three petal valves 52 that Smith describes in his specification and shows in his drawing Fig. 2. The width of the nozzle 15 cannot be increased to compensate for this because the dimensions of pressure operated cartridges, nozzles, and application guns are standardized. Secondly, this would also require modifying the configuration of Smith's three petal valves 52 by moving them into close enough proximity to one another to allow the three valves 52 to fit within the inside diameter of the nozzle 15, otherwise when

the nozzle 15 is bonded to the seal 24 the flange will cover over the petal valves 52 and prevent them from opening. Additionally, in order to fit the three valves 52 within this substantially smaller area requires that the valves 52 would also have to be significantly reduced in size.

After reducing the diameter of the valve area 50 of Smith containing the three slit petal valves 52 to fit within the diameter of the nozzle 15, the seal 24 must be bonded to the raised polyethylene ring 40. Since there is no adhesive layer on the polyethylene layer 40 of the end disk 32, or on the exterior of the seal 24, a layer of adhesive that bonds to both polyethylene and metal foil must be applied to one or both of the surfaces.

When the paperboard 36 and polyethylene 40 layers are bonded to the polyester valve layer 46 of Smith, the center cutouts 38 and 44 leave the center valve area 50 recessed in the end disk 32 as shown in his drawing Fig. 2. The depth of the recess is equal to the combined thickness of the adhesive 48, paperboard 36, and polyethylene 40 layers. If the seal 24 is bonded to the raised polyethylene ring 40 without the nozzle 15, the combined thickness of the adhesive 48, paperboard 36, and polyethylene 40 layers making up the outer ring could prevent the seal 24 from bonding to the polyester valve layer 46 in the recessed center valve area 50 when the seal 24 is bonded to the end disk 32, especially since the diameter of the cutouts have to be reduced to approximately ½ inch. This would leave a space between the polyester valve layer 46 and the seal 24 in the recessed center valve area 50 equal to the combined thickness of the adhesive 48, paperboard 36, and polyethylene 40 layers.

If the flange 26 of the nozzle 15 of Galbierz is then bonded to the seal 24 in some manner and the cartridge 10 is pressurized, the cartridge contents will flow out through the petal valve openings 52 and continue to fill the unbonded space between the polyester valve layer 46 and the seal 24 in the recessed central valve area 50 until the seal 24 bursts. When the seal 24 bursts in this undefined manner, portions of the broken seal 24 can break off and contaminate the cartridge contents as it dispenses out the nozzle 15. If this is not rectified, bonding the dispensing device of Galbierz to the composite disk valve of Smith in this manner produces a seal combination that performs no differently than the Galbierz seal performs alone,

along with its inherent drawbacks as I detail in the specification of my own application.

Overcoming this drawback requires bonding the seal 24 to both the raised polyethylene ring 40 and the polyester valve layer 46 in the recessed central valve area 50 simultaneously. In order to accomplish this the seal 24 would have to be compressed and held against the end disk 32 with the use of a flexible compression device such soft rubber until the bonding adhesive either cooled, cured, or dried. This is a very time consuming process that cannot be performed on continuous high speed web converting equipment and would also add substantially to the unit cost of each seal.

After the seal 24 is bonded to both the raised polyethylene ring 40 and the recessed valve area 50 the nozzle15 must be bonded to the seal 24. Galbierz uses a layer of polyethylene heat seal adhesive 26'to bond the metal foil layer 25 of his seal 24 to the flange 26. However it would not be possible to bond the plastic flange 26 to the seal 24 by using this layer 26' of heat activated adhesive because if heat was applied to the exterior of the flange 26 it would act as an insulator and melt before the polyethylene adhesive layer 26' melted and bonded the flange 26 to the installed seal 24. Additionally heat cannot be applied to the opposite side of Smith's end disk 32 because the polyethylene 58 and the polyester 46 layers would melt and the paperboard layer 36 would act as an insulator. The multitude of different layers arranged in the manner of the seal 24 of Galbierz and the end disk 32 of Smith prevents attaching the nozzle 15 and seal 24 to the end disk 32 in this manner.

These numerous modifications and obstacles do not support the obviousness of attaching the seal 24, flange 26, and nozzle 15 of Galbierz, to the polyethylene 40 ring layer of Smith's end disk 32 in order to duplicate my frangible seal invention as claimed by the examiner.

Looking at the second possible method of attaching the frangible seal 24 and nozzle 15 of Galbierz to the end disk 32of Smith.

2. The seal 24 of Galbierz is first bonded to the recessed valve area 50 of Smith, and then the

nozzle15 is bonded to the seal 24.

It would first be necessary to modify the configuration of Smith's three petal valves 52 by moving them into close enough proximity to one another to allow the three valves 52 to fit within the inside diameter of the nozzle 15, otherwise when the nozzle 15 is bonded to the seal 24 the flange 26 will cover over the petal valves 52 and prevent them from opening. The width of the interior opening of a standard sized cartridge nozzle as shown in my application and Galbierz's drawings, is approximately ½ inch. This is a substantially smaller area relative to the spaced out positioning of the three petal valves 52 that Smith describes in his specification and shows in his drawing Fig. 2. The width of the nozzle 15 cannot be increased to compensate for this because the dimensions of pressure operated cartridges, nozzles, and application guns are standardized. Additionally, in order to fit the three petal valves 52 within this substantially smaller area requires that the valves 52 also have to be significantly reduced in size

Galbierz discloses in his specification that the foil layer 25 in his frangible seal 24 is seven ten thousandths of an inch thick and the polyethylene layer 26' is two mils thick for a total seal 24 thickness of less than three thousandths of an inch. Although Smith does not provide the thickness of the adhesive 48, paperboard 36, or polyethylene 46 layers, the total thickness of the three layers, when considering the thickness of the stiffening paperboard layer alone, would be many times that of the frangible seal 24 of Galbierz that, by necessity, has to be extremely thin in order to allow the seal 24 to burst at a pressure that is low enough to prevent the cartridge contents from ejecting out the open of the nozzle at high speed, with all the ramifications that that entails.

Because the seal 24 is substantially thinner than the combined thickness of the adhesive 48, paperboard 36 and polyethylene 40 layers making up the outer ring, requires that the seal 24 would have to be inserted into the recessed valve area 50 by using a device that would closely fit into the recess and maintain pressure against the seal 24 until the bonding adhesive either cooled, cured, or dried. This is a very time consuming process that cannot be achieved on continuous high speed web converting equipment and would add substantially to the unit cost of each seal.

After the seal 24 is bonded the polyester layer 46 in the recessed valve area 50 the nozzle15 must be bonded to the seal 24. Galbierz uses a layer of polyethylene heat seal adhesive 26'to bond the metal foil layer 25 of his seal 24 to the flange 26. However it would not be possible to bond the plastic flange 26 to the seal 24 by using this layer 26' of heat activated adhesive because if heat was applied to the exterior of the flange 26 it would act as an insulator and melt before the polyethylene adhesive layer 26'adhesive melted to bond the flange 26 to the seal 24. Additionally heat cannot be applied to the opposite side of Smith's end disk 32 because the polyethylene 58 and polyester 46 layers would melt. The multitude of different layers arranged in the manner of the seal 24 of Galbierz and the end disk 32 of Smith prevents attaching the nozzle 15 and seal 24 to the end disk 32 in this manner.

These numerous modifications together with the inability to bond the seal 24 to the recessed polyester layer 46 of the end disk 32 prior to the nozzle 15 do not support the obviousness of attaching the seal 24, flange 26, and nozzle 15 of Galbierz, to the recessed center valve area 50 of Smith's end disk 32 in order to duplicate my frangible seal invention as claimed by the examiner.

Looking at the third possible method of attaching the frangible seal 24 and nozzle 15 of Galbierz to the end disk 32of Smith.

3. The nozzle 15 of Galbierz with the seal 24 already bonded to it, is bonded to the raised polyethylene ring 40 of Smith.

Bonding the nozzle 15 of Galbierz with the seal 24 attached to the raised polyethylene 40 ring layer of Smith would first require modifying the end disk 32 of Smith by reducing the diameter of the cut outs 44 and 38 in the layers 36 and 40 of Smith to the same width as the interior opening of the nozzle 15 of Galbierz. The width of the interior opening of a standard sized cartridge nozzle as shown in my application and Galbierz's drawings, is approximately ½ inch. The width of the nozzle 15 cannot be increased to compensate for this because the dimensions of pressure operated cartridges, nozzles, and application guns

are standardized. This is a substantially smaller area relative to the spaced out positioning of the three petal valves 52 that Smith describes in his specification and shows in his drawing Fig. 2. This also requires modifying the configuration of Smith's three petal valves 52 by moving them into close enough proximity to one another to allow the three valves 52 to fit within the inside diameter of the nozzle 15, and finally, in order to fit the three valves 52 within this substantially smaller area requires that the valves 52 also have to be significantly reduced in size.

After reducing the diameter of the recessed valve area 50 of Smith containing the three petal valves 52 to fit within the inside diameter of the nozzle 15, the seal 24 and nozzle 15 must be bonded to the raised polyethylene ring 40. Since there is no adhesive layer on the polyethylene layer 40 of the end disk 32, or on the exterior metal foil layer 25 of the seal 24, a layer of adhesive that bonds to both polyethylene and metal foil must be applied to either one or both of the surfaces.

As previously disclosed herein, when the paperboard 36 and polyethylene 40 layers are bonded to the polyester valve layer 46 of Smith, the center cutouts 38 and 44 leave the center valve area 50 recessed in the end disk 32 as Smiths shows in his drawing Fig. 2. The depth of the recess is equal to the combined thickness of the adhesive 48, paperboard 36, and polyethylene 40 layers. If the seal 24 with attached nozzle 15 is bonded to the raised polyethylene ring 40, the combined thickness of the adhesive 48, paperboard 36, and polyethylene 40 layers making up the outer ring will prevent the center of the seal 24 from bonding to the polyester valve layer 46 in the recessed center valve area 50 when the nozzle 15 with attached seal 24 is bonded to the end disk 32, especially since the diameter of the valve area 50 has to be reduced to fit within the approximately ½ inch diameter of the nozzle 15 opening 18. There is no way to press the area of the seal 24 inside the nozzle 15 against the polyester layer 46 in the recessed valve area 50 to ensure the bond. This would leave a space between the polyester valve layer 46 and the seal 24 in the recessed valve area 50 equal to the combined thickness of the adhesive 48, paperboard 36, and polyethylene 40 layers.

If the nozzle 15 with the seal 24 attached is bonded to the polyethylene ring layer 40 without the seal 24 being bonded to the recessed valve area 50 , the cartridge contents will flow out through the petal valve openings 52 when the cartridge 10 is pressurized and continue to fill the unbonded space between the polyester valve layer 46 and the seal 24 in the recessed valve area 50 until the seal 24 bursts. When the seal

24 bursts in this undefined manner, portions of the broken seal 24 can break off and contaminate the cartridge contents as it dispenses out the nozzle 15. Bonding the dispensing device of Galbierz to the composite disk valve of Smith in this manner produces a seal combination that performs no differently than the Galbierz seal performs alone, along with its inherent drawbacks as I detail in the specification of my own application.

These numerous modifications together with the inability to bond the nozzle 15 with the seal 24 attached to the raised polyethylene layer 40 of the end disk 32 do not support the obviousness of attaching the seal 24, flange 26, and nozzle 15 of Galbierz, to the raised polyethylene layer 40 of Smith's end disk 32 in order to duplicate my frangible seal invention as claimed by the examiner.

Looking at the fourth possible method of attaching the frangible seal 24 and nozzle 15 of Galbierz to the end disk 32of Smith.

4. The nozzle 15 of Galbierz with the seal 24 already bonded to it, is bonded to the recessed valve area 50 of Smith.

Before bonding the nozzle 15 of Galbierz with seal 24 attached to the polyester layer 46 in the recessed valve area 50, it would again be necessary to modify the configuration of Smith's three petal valves 52 by moving them into close enough proximity to one another to allow the three valves 52 to fit within the inside diameter of the nozzle 15, otherwise the flange 26 will cover over the petal valves 52 and prevent them from opening. As previously disclosed, he width of the interior opening of a standard sized cartridge nozzle as shown in my application and Galbierz's drawings, is approximately ½ inch. This is a substantially smaller area relative to the spaced out positioning of the three petal valves 52 that Smith describes in his specification and shows in his drawing Fig. 2. Again as previously disclosed, the width of the nozzle 15 cannot be increased to compensate for this because the dimensions of pressure operated cartridges, nozzles, and application guns are standardized. Additionally, in order to fit the three petal valves 52 within the approximately ½ inch diameter area of the nozzle 15 opening requires that the three petal valves 52 would also have to be significantly reduced in size.

After reducing the diameter of the spacing and the size of the three petal valves 52 of to fit within the diameter of the nozzle 15 opening 18, the nozzle 15 with seal 24 attached must be bonded to the polyester layer 46 in the recessed valve area 50. Since there is no adhesive layer on the polyester layer 46 of the end disk 32 of Smith, or on the metal foil layer 25 of the seal 24, a layer of adhesive that bonds to both polyester and metal foil must be applied to either one or both of the surfaces.

However, regardless of what type of adhesive is used, after the nozzle 15 with the seal 24 attached is inserted into the recessed valve area 50, there is no way to press the area of the seal 24 inside the nozzle 15 against the polyester layer 46 in the recessed valve area 50 to ensure the bond. Incomplete bonding of the seal 24 to the polyester layer 46 can occur which would allow the cartridge contents to be forced in between the layers and separate them which would cause the seal 24 to burst in an undefined manner. Portions of the broken seal 24 can then break off and contaminate the cartridge contents as it dispenses out the nozzle 15. Bonding the dispensing device of Galbierz to the composite disk valve of Smith in this manner produces a seal combination that performs no differently than the Galbierz seal performs alone, along with its inherent drawbacks as I detail in the specification of my own application.

These numerous modifications together with the inability to bond the nozzle 15 with the seal 24 attached to the recessed polyester layer 46 of the end disk 32 does not support the obviousness of attaching the seal 24, flange 26, and nozzle 15 of Galbierz, to the recessed center valve area 50 of Smith's end disk 32 in order to duplicate my frangible seal invention as claimed by the examiner.

In addition to the numerous obstacles described herein that would prevent the combination of the Galbierz and Smith devices from providing a frangible cartridge nozzle seal arrangement that bursts in a desirable and practical manner, there is a further fundamental flaw that renders the Smith - Galbierz seal combination non functional and will also prevent the seal from bursting when cartridge pressure is applied.

Smith states in his specification that the vanes 56 of the petal valves 52 are formed by a pair of intersecting slits 54 that are cut in the polyester disk layer 46 in a crosshair pattern and intersect at the

center. The vanes are coplanar with the polyester disk 46 when the petal valves 52 are closed. When in the closed position, the edges of the slits 54 forming the x - shaped vanes 56 butt up against and contact each other to prevent leaking and stringing of the cartridge sauce contents. When the cartridge 24 is pressurized by the dispensing gun, the vanes 56 of the petal valves 52 open to allow the sauce to dispense out through them. When the cartridge 24 pressure is released the vanes 56 of the petal valves 52 return to the closed coplanar position.

The examiner states in the rejection that the intersecting slits 54 forming the vanes 56 of the petal valves 52 in the polyester layer 46 of Smiths end disk 32 perform the same function as the cut out void configuration forming the breaking pattern in the template layer of my own seal invention. The examiner further states that the when the frangible seal 24 with the attached nozzle 15 of Galbierz is bonded to Smith's polyester layer 46, the slits 54 forming the x - shaped vanes 56 of the petal valves 52 will force the frangible seal 24 to burst open only in the configuration of the x shaped slits 54 in the same manner that the cut out void forming the breaking pattern of my seal invention forces the frangible layer to burst open only in the configuration of the void. Additionally, the examiner states in the rejection that the seal 24 and nozzle 15 of Galbierz is bonded to the valve area 50 of the polyester layer 46 of Smith with a layer of adhesive in the same manner that the frangible layer of my own seal invention is bonded to the template layer.

These comparisons do not accurately describe the structure of the components that makeup my nozzle seal invention and also misrepresent the manner in which my seal invention functions when compared to the manner in which the Galbierz - Smith combination seal device should function, for the following reasons.

After the adhesive layer is applied to either the seal 24 or the polyester layer 46 and the layers are brought together, pressure must be applied to ensure a complete bond and to prevent the layers from separating. However, because the edges of the x - shaped slits 54 forming the valves 52 in the polyester layer 46 are in close proximity or touch each other, the same pressure that bonds the layers together will

also force the viscous adhesive layer into the slits 54.

Whatever type of adhesive that is used to bond the metal foil layer 25 of the seal 24 to the polyester layer 46, will also bond polyester to polyester. When the adhesive layer hardens it will not only bond the seal 24 to the polyester layer 46 it will also bond the vanes 56 of the petal valves 52 formed by the slits 54 to each other which prevents the slits 54 from opening when cartridge pressure is applied. Additionally the adhesive forms a continuous layer between the polyester layer 46 and the seal 24 that will cover over the slits 54 forming the petal valves 52 and further eliminate any possibility of the petal valves 52 opening when cartridge pressure is applied. These intractable drawbacks cannot be eliminated whether the adhesive layer is applied before or after the slits 54 are cut in the polyester layer 46, if the adhesive is applied to either the seal 24 or the end disk 32, or regardless of the type of adhesive used.

My new and novel frangible cartridge nozzle seal invention eliminates all of the obstacles and drawbacks disclosed herein that prevent the sealing combination provided by bonding the sealing device of Galbierz to the composite disk valve of Smith, from functioning in a workable and desirable manner.

My seal invention accomplishes this by using a breaking pattern that is created by a blank cut out configuration that is not a slit like those forming the petal valves 52 in the polyester layer 46 of the Smith composite disk valve. What allows my seal invention to function flawlessly and eliminate the obstacles that would prevent the Galbierz - Smith combination sealing device from functioning, is the nature of the breaking pattern and the roll it plays in the functioning of my invention.

My cartridge nozzle seal is made up by bonding a first frangible layer to a second strengthening layer. The strengthening layer contains a cut out void configuration that forms a breaking pattern. The void configuration of the breaking pattern turns the strengthening layer into a template layer. When the frangible layer is bonded to the template layer, the void area leaves a weakness in the multi layered seal only in the configuration of the breaking pattern by leaving only the frangible layer covering over the cut out blank of the breaking pattern which forces the seal to burst open only in the weaker area of the breaking pattern

when the cartridge is pressurized as I further disclose in the specification of my application.

My frangible seal invention accomplishes this and eliminates the drawbacks of using slits to create a pressure activated self opening seal by cutting out a blank from the strengthening layer that leaves the edges of the cut out void forming the breaking pattern configuration a substantial distance from each other as I show in fig. 3 of my drawings. This critical difference allows the adhesive layers that bond the seal to the nozzle, and the frangible layer to the template layer, to be applied with out any of the adhesive spanning the width of the cut out void and, also allows the frangible layer to be bonded to the template layer without any adhesive being present on the frangible layer in the area of the cut out void configuration.

This is true whether the adhesive is sprayed on, rolled on, or is a laminated thin film. For example if the adhesive is sprayed on it will pass through the void area of the cut out blank of the breaking pattern configuration and remain only in the area of the seal that is bonded to the frangible layer. If the adhesive is rolled on, it will be applied only to the area of the template layer sheet that is pressed against the roll applicator, leaving the adhesive that is the area of the cut out void on the roll applicator. If the adhesive layer is a thin film laminate the breaking pattern is cut out of the template layer after the film is applied to the template layer.

The width of the cut out void in the configuration is also wide enough to prevent the adhesive bonding the frangible layer to the template layer from migrating across the width of the cut out void when the two layers are rolled together thereby leaving only the frangible layer in the area of the cut out void configuration forming the breaking pattern in the multi layered frangible seal invention. This prevents the adhesive layer from interfering with the bursting function of the seal. This also allows the thickness of the frangible layer and henceforth the burst pressure of the seal to be precisely controlled.

Therefore having disclosed herein my rebuttal to the reasons claimed by the examiner for the rejection of my patent application based on obviousness, I respectfully request that a timely Notice of

Allowance be issued in this case.

Respectfully submitted,

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